Keli Tarp/NOAA

Research meteorologist Rodger Brown and others used the test radar installation at the National Severe Storms Laboratory (pictured) to develop modern Doppler radar.

Rodger Brown: Developing Doppler Radar

–By Keli Tarp

This is the eighth in a series of profiles of men and women who have been NOAA employees since NOAA was established in 1970.

On NOAA's first day nearly 30 years ago, research meteorologist Rodger Brown started working at the National Severe Storms Laboratory in Norman, Okla. His job was to help develop and test the use of Doppler radar to detect and track severe storms.

Over the years, Brown has continued to be a part of the development of what we now know as the WSR-88D, or NEXRAD Doppler radar. When he began at the lab, he was part of a new program to test the use of a 10-centimeter Doppler radar, which was put together from an old DEW line radar and is still located next to the lab, although it hasn't been used in years.

Brown, working with other scientists and technicians, analyzed the data collected by the radar to see what he could learn. One of the team's early successes occurred when the Norman radar captured images of a tornado near Union City, Okla. When analyzing that data, he and the other scientists discovered the tornado's unique radar signature.

"We saw something that looked like noise or bad data, but then we discovered it was consistent at different heights," Brown said. "It coincided with the tornado's damage track and we realized we were looking at the tornado itself."

This discovery of a tornado's signature, velocity readings adjacent to each other showing winds going in opposite directions, fueled the development of Doppler radar.

Brown's applied research today still concerns that radar, developing better scanning strategies and interpreting radar signatures. He looks forward to working with the new technology being developed today, including dual-polarization

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radar and a three-dimensional lightning mapper, to continue to better understand storms.

In fact, new technology, including the development and use of computers, has been the biggest change Brown has seen at the National Severe Storms Laboratory.

"When I first came here, we did everything in punch cards," Brown said. "Before the lab got our own respectable computer in the late 1970's, major work of processing data was done on computers somewhere else, including the FAA facility in Atlantic City and the NASA facility in Houston."

With a station wagon full of thousands of punch cards in drawers, severe storms lab researchers would drive more than eight hours to the Johnson Space Center to borrow NASA's computers, working at the only time they were available, on the night shift over the weekend.

Brown developed an interest in weather in junior high school during an earth science class. His mother thinks his interest was fate, he said, because he was born during a thunder snowstorm and grew up in the lake effect snowbelt of Lake Erie in New York.

Brown earned a Bachelor of Science degree in earth sciences from Antioch College in Yellow Springs, Ohio, in 1960. Two years later he earned a Master of Science degree in meteorology from the University of Chicago, where he studied with renowned meteorology researcher Ted Fujita. He earned a Ph.D. in meteorology from the University of Oklahoma in 1989.

Early in his career he held jobs at the Mount Washington Observatory in New Hampshire, the Blue Hill Meteorological Observatory in Milton, Mass., and the U.S. Weather Bureau's Severe Local Storms Research Unit in Washington, D.C., precursor to the National Severe Storms Laboratory.

He also spent 13 months in Antarctica at Little America V during the International Geophysical Year in 1957-59, taking surface weather observations and sending up weather balloons from the largest scientific base in the Antarctic. A mountain in Antarctica is named after him because of his service there. Mount Rodger is a sharp peak, 1,410 meters high, at the northwest end of Collier Hills in the Heritage Range.

Through his early career, Brown said he had always known about and worked with radar, and coming to the lab was a natural step. The time spent there has been rewarding, he says.

"The past 30 years have gone by fast," he said. "It's been fun seeing the evolution in the use of Doppler radar from research to operational modes. And I enjoy continuing to help the NEXRAD Operational Support Facility improve operational capabilities."

In fact, even after a planned retirement in a few years, Brown anticipates he will continue to do severe storms research, if only on a part time basis. Because it's what he does.

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